THE NATIONAL GEOGRAPHIC MAGAZINE

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VOL. XII, No. 7 WASHINGTON JULY, 1901

THE NATIONAL GEOGRAPHIC MAGAZINE

THE LINK RELATIONS OF SOUTHWESTERN ASIA*

BY TALCOTT WILLIAMS, LL. D.

IN history a vast literature exists on southwestern Asia, the one region of the world's surface whose written record is oldest, most continuous, and most full. The physical features of the region have had a discussion less full, but almost as long. In southwestern Asia the arc of the celestial sphere was first applied to the measurement of the earth's surface. There first the sign, the hour, the degree, the minute, and the second were devised. There the earliest maps were made. There the first geographical record was inscribed. Our entire knowledge of the earlier distribution of man upon the earth and of the condition in which he found its earlier physical features, when his conscious life first woke to their impression, influence, and effect, rests upon the records of clay, in stone, and on papyrus of the river valleys of southwestern Asia and its linked regions. I propose, however, to consider alone neither the history nor the physical conditions of this tract, but to endeavor to show the interrelation between the two, the causes which have made this part of the earth's surface prolific in history, the guiding principle which in every age has determined the course of these annals, and the fashion in which in our own time a problem which began at the very dawn of human annals is receiving its final solution.

THE ASIAN COAST-LINE

In dealing with any continent it is well for us to orient ourselves by considering in their simplest relation its area and coast-line. If the area of each of the continents be represented by a circle which gives its relative extent contained in the smallest possible form, and outside of this we draw another circle, giving the length of the sides of its extremely irregular reëntrant polygon,[1] we have presented to us graphically the relative access which the continents enjoy from the sea—an access which constitutes the great source of perturbing influence, so far as the inhabitants of each continent are concerned. If this ratio

[1] Development of Continental Coast Lines Relative to Area, Geog. Univ., Reclus, E., Europe.

* A lecture delivered before the National Geographic Society March 5, 1901.

is very large—and it is larger in the case of Europe than any other—the access of perturbing influence will be frequent; if it is small the reverse will be true.[2]

Asia, largest in absolute area, stands midway with reference to the ratio which its coast-line bears to its area between the six great divisions into which the earth's surface is usually divided, three of which were known to the earliest geographers of the region of which we are treating—a region which stands at the junction of the three. The ratio is smaller than it is in the case of Europe or North America; it is larger than that of Australia, Africa, or South America. *A priori*, therefore, we might simply, with these relations before us, if we were dealing with the affairs of an unknown planet of which we knew only the facts presented by these areas and circles, conclude that the most mobile conditions would exist in the continent named Europe; that these would be shared by North America; that the affairs of Asia would offer a mean between the extreme activity of Europe and the extreme immobility in the history and development of Australia. The problem which we have to consider with our larger knowledge is to determine the interaction which these varying relations of area and coast-line have created between the three contiguous continents with which we have to deal, whose natural mean term and link is southwestern Asia.

THE RED SEA RIFT

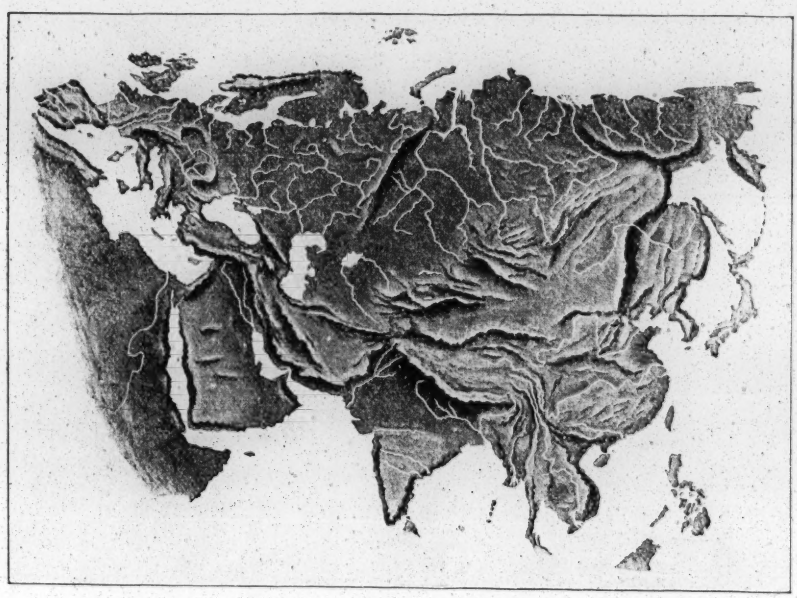
With the general characteristics of Asia you are already familiar. As I present to you the Eurasian continent,[3] you recognize instantly that its central core is that great east-and-west uplift whose western center is the Alps and whose eastern upheaval is the great boss of central Asia, too large to be designated by any one term. This great and continuous chain is crossed at right angles upon the earth's spheroid by that long drawn rift or gap which extends from the hollow valleys of Coele-Syria to Lake Tanganyika and beyond, to which attention was first called by Suess, and which has been more fully discussed by the English geographer, Mr. J. W. Gregory.[4] This range extends in its subordinate forms to the very edge of that other great rift—part of that circle of fire which rings the Pacific. Properly speaking, one might say there are three great lines of volcanic action: one old, which lies at right angles to the great Eurasian uplift, and which is in a condition which, in the case of a river, we should call its last stage; one in its mid-stage of activity, extending parallel to it along the eastern coast of Asia, and a third, which appears,

[2] The figures as to the area of the continents are necessarily mere approximations. The following table gives the outline as presented by M. Elisée Reclus:

	Europe.	Asia.	Africa.	N. America.	S. America.	Australia.
Total area, square miles	4,005,100	17,308,400	11,542,400	9,376,850	6,803,570	3,450,130
Mainland, square miles	3,758,300	15,966,000	11,293,930	7,973,700	6,731,470	2,934,500
Development of coast-line, miles	18,600	34,110	16,480	30,890	16,390	10,570
Accessible coasts	17,610	28,200	18,480	26,510	16,390	14,400
Ratio of the geometrical to the actual contour	1 : 2.5	1 : 2.5	1 : 1.4	1 : 3.1	1 : 1.8	1 : 1.7

[3] Relief Sketch Map of Eurasia, Lambert's Projection, Butler's School Geographies.

[4] "Das Antlitz der Erde," Suess, Edouard, and "The Great Rift Valley," Gregory, J. W., 1896.



Relief Sketch Map of Eurasia — Lambert's Projection

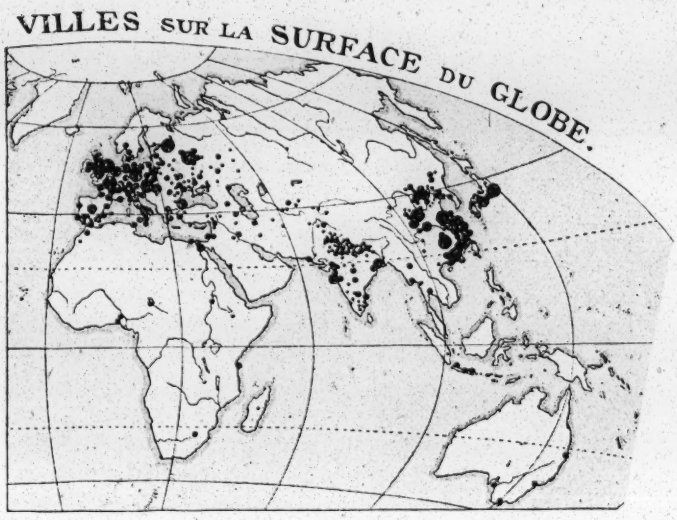
Courtesy of Messrs Butler and Sheldon

though one cannot say certainly, not to have yet reached its maximum of activity, but in an area like that crowded volcanic region in Central America, to be still in what one might call the torrent stage of a river. The great east-and-west line which divides Asia has to the north great plains, but recently (speaking in a geologic sense) submerged, and to the south groups of river valleys, which, in the case of the Indo-Asian, the Indian, and the Euphrates Valley, abut on more southern regions of an older type and now wholly or partially submerged. Asia has, in short, an abrupt scarp to the south, a sloping desert plain to the north, and the greatest of earth's mountains between.

THE DISTRIBUTION OF CITIES

This area presents itself to us as divided into countries settled and inhabited. Broad tracts there are to the north almost without population, but the unconscious impression which we have in regard to Asia is, as with most parts of the earth's surface where men exist, of a uniform film of population spread over the entire region, not greatly differentiated. But the test of organized population is the existence of cities. The presence or absence of cities measures not only the density of population, but the extent to which population is organized in society. From a map of this region [5] indicating cities of over 50,000 population, the smaller dots indicating cities of this size and the largest going up to cities of 1,000,000 population, it is apparent that the city population of the Eurasian area is centered in three distinct groups. These lie in the two river systems of China, in north India, principally on the Ganges, and in the western

[5] "Villes sur la Surface du Globe," Almanach Hachette, 1900, p. 293. This map has, as most will see, another origin, but I have referred to the form in which I found it most suitable for reproduction.



part of Europe. China is throughout a thickly populated country, but its greater cities are drawn toward the coast and lie principally in a crescent-shaped mass from the mouth of the Hoang-ho to the mouth of the Si-kiang. In the same way the cities of India crowd into the valley of the Ganges, and the great bulk of the city population of Europe lies in the narrow ellipse of which Berlin and London are the two foci.

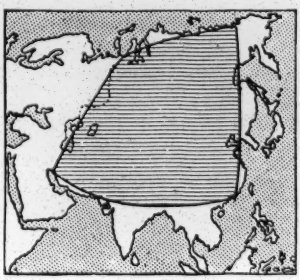
THREE ORGANIZED AREAS

The area which we are considering, therefore, instead of being one of a general and indiscriminate population, is differentiated into three masses, into cities far apart on the east, the west, and the south of the Eurasian mass. The history of the world for many thousand years has been the history of the interaction of these three great masses of city population. Each demands in part what only the other two can furnish. For each of the three great masses, as in all economic integers, prosperity rests not merely upon the continuous and symmetrical development of internal resources, but also and still more upon that narrow margin of advance and profit which comes from advantageous exchange. When these three masses of population, which early formed themselves into cities—for the present cities of northern Europe are the direct descendants of a similar ellipse of cities along the Mediterranean and which still have their representatives there—enjoy a full, unbroken exchange, these three groups are prosperous. When an interruption occurs in this exchange, there come, in any one of the three which is in a position most to feel the interruption, economic depression, disaster, revolution, extending perhaps to a social cataclysm. This often arises not because interruption of free intercourse between these three great groups of cities would alone have caused catastrophe, but because when many other causes of an internal character had combined to weaken the social fabric, the shock which came by the loss of this profit was sufficient to destroy unstable equilibrium and to bring a sudden ruin which otherwise would have gone through a normal degeneration and deterioration. So far as these groups appear on an ordinary map, communication appears easy. A broad extent of land connects all three, and the ordinary impression is one of connection, and not separation, between the different parts of this great land mass.

THE CORE OF ASIA

These city groups lie outside the main core of the continent. If the rude trapezium which can be inscribed within the continental mass of Asia be drawn

upon its surface, as in the accompanying diagram[6], the city regions lie outside of this great central mass. This is true of both the earlier lines of cities which stretch from Ctesiphon to Italica, of the present group in northern Europe, and of the more modern group which extends from Moscow to Manchester, of the cities of India, and of the cities of China. In fact, if the eastern line bounding the continental core of Asia be drawn from the head of the Gulf of



The Continental Core of Asia

Courtesy of Messrs. D. Appleton & Co.

Tonkin to the head of the Gulf of Pechi-li, the entire city area of China will lie to the east of this line. It is true, therefore, of the highly organized parts of the Asiatic continent that its 1,500,000 square miles of mainland all lie outside of the great land mass. The space within the central core, which amounts in all to between 12,000,000 and 13,000,000 square miles, is a great region, which, as it stretches before us on the map, is seen to be without history, without product, without letters, and without art. Within this vast area one-fifth of the world's surface, whose history began early, over which men have moved through all the annals of man, there is no spot where any book has been produced which men cherish; thence has come no painting or statue which men admire. There is no lack in this area of battle, murder, and sudden death; of the noise of the captains and the shouting; of garments rolled in blood, and all the uproar of siege and sack. But as we remember its wars, they seem to us, however wide our historical knowledge, as fought

> On a darkling plain,
> Swept with confused alarms of struggle and flight,
> Where ignorant armies clash by night.

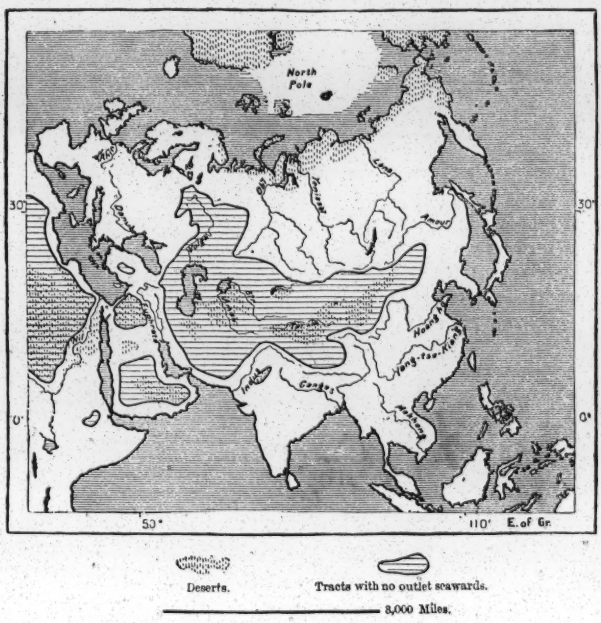
ASIA'S ARID CLOSED BASIN

One reason why this main core is without history is because in larger part it consists of a closed basin, the largest on the earth's surface.[7] This closed basin, whose irregular outlines bound the great sea which once matched the Mediterranean and extended in a great L-shape projection[8] to the Arctic Ocean, along the low trough in which the Obi runs, and which constitutes the real division between Asia and Europe, rather than the Ural Mountains, is divided into two portions by the Kuenlun range, the southern and elevated plateau from 12,000 to 15,000 feet high; the northern, lower, but still having an average elevation of 5,000 or 6,000 feet, extending to the low watershed which divides the series of rivers that flow toward the Arctic from the group of lakes that extends across Asia. This area is, in the first place, closed; this cuts it off from the sea. The sea-flowing river leads to the sea, and the sea leads the world around. Still more; this is not only a closed basin; it is a closed basin because it is arid; for wherever there is sufficient rainfall, an inner basin (as has been the case with several on our own continent) is certain

[6] "The Continental Core of Asia," International Geography, Mill, Hugh Robert, 1900, p. 423.

[7] Arid Regions, Enclosed Basins; "Earth and Its Inhabitants;" Asia; I, p. 11. Reclus, E. 1884.

[8] The Natural Boundary of Europe; "Earth, &c.;" Europe; I, p. 11. Reclus, E.



Arid Regions and Closed Basin of Asia

Courtesy of Messrs. D. Appleton & Co.

to establish connection with the sea. The streams on one side or the other eat back through the watershed, "steal" the source of an earlier and less vigorous stream, and bring about that continuous drainage across the previous dividing line which is the mark of so much of our Appalachian region. Nothing of this kind has happened with this closed basin, which from the earliest history has remained closed. The greater streams of Asia, like the Indus and the Ganges, have eaten longitudinally in the folds of the great system in which they sprang, and have not cut across the watershed. The different conditions of China from those of India appear in large measure due, however, to a somewhat different action of the streams there, though this awaits further investigation. The great curve of the Hoang-Ho and sundry conditions of the upper Yangtze Kiang indicate the coalescence of valleys previously separate.

The eastern part of this enclosed area, the Great Plain of Turkestan, extends to a level below the surface of the ocean; but all the three parts, the elevated plateau of Tibet, the less elevated area of Chinese Turkestan, and the plains of the Khanates, constitute together a great block interfering with free communication between the two city centers of Asia and the successive city centers of Europe, first south and then north of the Alps. Over all this area a dense population has never been possible. Only at points where irrigation is feasible has the population ever reached a high degree of civilization in tracts essentially insular in their character, cut off by oceans of desert, and able to develop insular cultures in the midst of a continental area. Two great highways extend across this enclosed basin. Of the two areas on each side which are open to the ocean, connecting the Eurasian centers of population, the one to the north is closed by cold.

THE LINK REGION

There remains, therefore, in the great land stretch which apparently connects the different civilizations of the Eurasian system only the narrow strip of ocean-drained lands which extends from the Indus to Asia Minor. This constitutes the natural highway of the Eurasian system. It is the link land of the continent. Its history has had an internal development. Its external relations, however, the growth of its dynasties, the course of its culture, the development of its wealth, and the channels of its trade have throughout this entire region—

The Mediterranean Basin

Courtesy of Messrs. D. Appleton & Co.

which on our maps today is covered by Afghanistan, Baluchistan, and the Persian and Turkish Empires—been governed by its position as a narrow causeway between the populations which grew up in the river basins of China and India and the populations which developed on European islands and peninsulas, large and small, old and new, from the days of the Phœnician galley to the days of the English tramp steamer.

The primal basal fact in regard to any part of the earth's surface, the fact which conditions all the rest and inexorably determines and defines human development, history, and civilization, is whether it partakes in its coast line of the Atlantic or Pacific Coast type. The first type, now a familiar commonplace in geography, is represented by coasts like those of the Atlantic, of which the eastern coast of North and South America is the standard, which show a minimum of change, constituting an even coast-line in which the hundred-fathom line through most of its course preserves so steadfast a distance from soundings that the position of a vessel can over most of this area be instantly, though approximately, determined by its discovery. Such a coast is continuous in its outline, quiescent in its mutations, unbroken in its development. To such a coast-line history can be transplanted. On such a coast-line history has never originated. The significant example of the Pacific type of coast, on the other hand, is represented by the western half of that rim of fire which girdles the Pacific and which gives the eastern coast of Asia its island continent and the successive volcanoes which appear at brief intervals from Krakatoa to the Arctic Circle. This type marks the true coast of Asia ; on the east it exists in northern India, and reappears in one of its most characteristic forms on the northern edge of the Mediterranean. If we reproduce here a summary of the distribution of these types of coast,[9] it is immediately apparent that the coast of China, the region in north India in which its two great river valleys lie, and the Mediterranean region are connected by a narrow strip of such coast along the Persian Gulf and the Bay of Bengal of the same mobile type. On the other hand, the east coast of Africa, all the coast of Arabia, including that on the Red Sea, represent coasts of an

[9] Der Atlantischer und Stiller Ozean Typus.

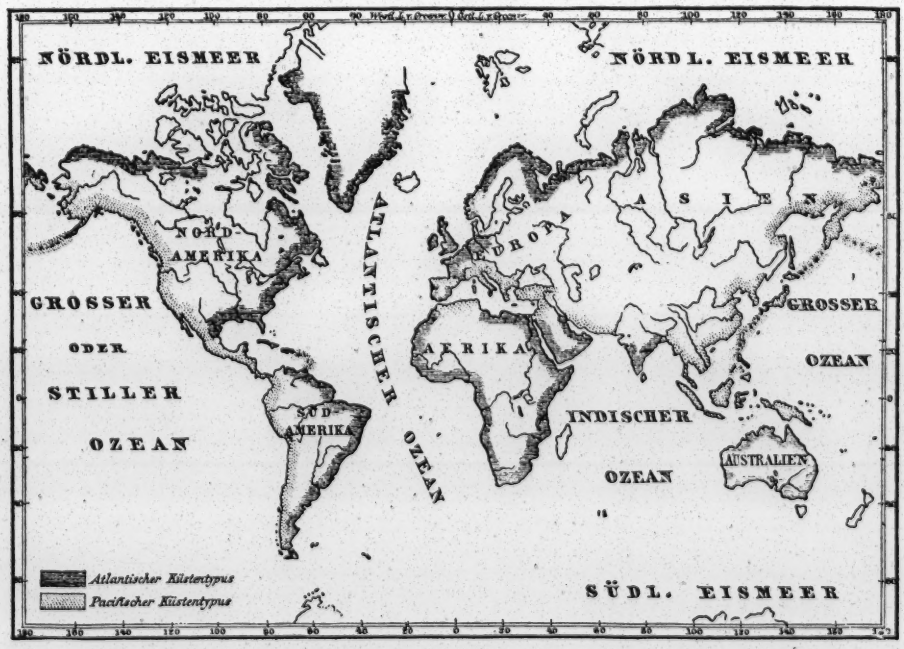
immobile type, in which fluctuations of surface have long since reached a comparative equilibrium. Where the coast is mobile, changes in the coast constantly occur. There the coast will be irregular, and the approaching and penetrating sea will carry

Into every bare inlet and creek and bay

contact and the seeds of development. The northern coast of the Eurasian region is bounded by an immobile coastline, and its area for 2,000 miles inland is of a monotonous character, which renders communication or the diversification of type difficult. The development of any race comes where there is a diversity of physiographic conditions. It is therefore significant that the three city regions already noted are joined at only one point along southwestern Asia by a strip of territory under physiographic conditions similar to their own. This is, of course, only another way of saying that the Taurus, Caucasus, and other ranges of the region are part of that same new uplift which decides the northern outlines of the Mediterranean and fixes the sources of the great river systems of Asia. In its fundamental characteristics, therefore, this region partakes of those coast conditions which exist in the three regions of which it is a link. It is provided with mountain ranges of a similar structure, running in the same general direction, presenting the same general aspect, and furnishing, therefore, the soil for transmission of common ideas and a similar social structure.

RAINFALL AND DEVELOPMENT

Rainfall determines the limits of human development. The rainfall of the world extends from a precipitation of from three to five inches up to ten feet; but the limits of this rainfall within which any civilization is possible are narrow. They extend practically from



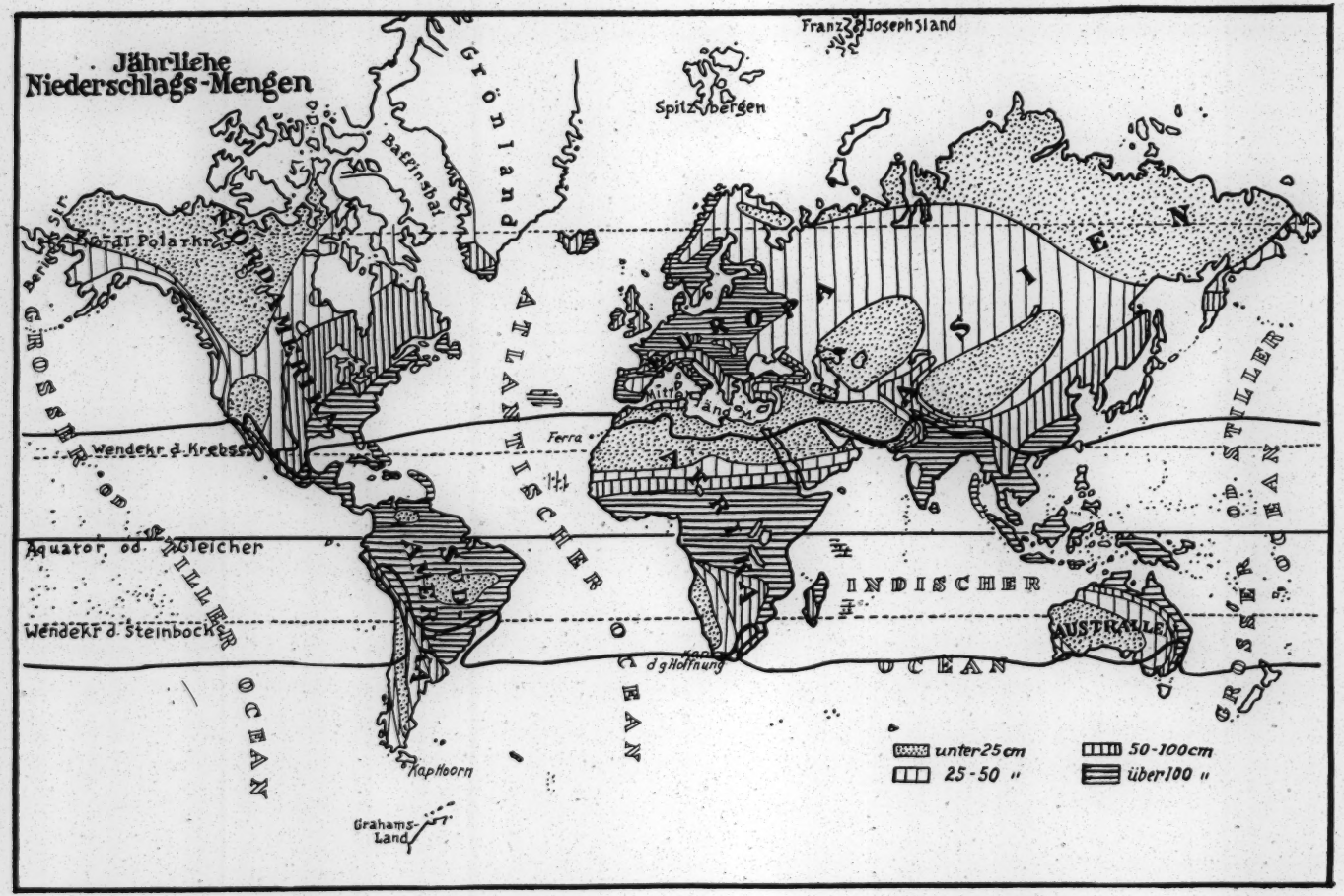
Map Showing Distribution of Atlantic and Pacific Coast Types

15 to 20 inches up to 45 or 50. With a rainfall of 50 inches few civilizations exist. With a rainfall of over 50 inches civilization is drowned out. A rainfall of less than 10 or 15 inches renders cultivation impossible unless irrigation is conducted on a large scale, and this involves either complete isolation from disturbance on the part of small communities or a share on the part of a small community in the security and capital of a larger nation, with sufficient resources to carry out an extensive project of irrigation. If, as in this map,[10] which presents rainfall, the average annual precipitation be distributed into a rainfall of under 25 centimeters, from 25 to 50 centimeters, from 50 to 100 centimeters, and over 100 centimeters, it will be seen that the civilized and developed regions of Asia and Europe have a rainfall of from 50 to 100 centimeters; but there lies between them a broad area of a rainfall of under 25 centimeters; and that the region which we have been considering has over it a strip of rainfall of 25 to 50 centimeters—a mean between the rainfall in which civilization is impossible and that under which it best flourishes. Where a rainfall as small as this falls over a broad tract of uniform modeling, it will be so distributed and diffused as to do little more than create brief green patches in the winter and spring. Where, however, it meets any medium mountain range creating valley areas, a rainfall of this character will be so collected as to give fertile river valleys essentially insular in their character, which will be sheltered from disturbing invasion by stretches around less easily traversed and in some respects, as in the desert west of Egypt, a greater protection than any ocean deep. Such a stretch of reduced rainfall over a mountain tract would constitute, therefore, another of the link conditions which unite the heavier precipitation under which civilization develops.

[10] Jahrliche Niederschlage Mengen in "Grundzuge Physischen Erdkunde," Supan, L., 1897, Taf. XI.

RAINFALL AND MOUNTAIN TRACTS

So far as precipitation is concerned, therefore, the three centers of the Eurasian system are separated by regions of insufficient rainfall north and south. Across these, just north of that high barometric area along the thirtieth parallel, which constitutes so important a climatic influence in the North Temperate Zone, stretches a region of medium rainfall for which the mountain system of southwestern Asia gives exactly the conditions which permit the early development of isolated civilizations in a region where the development of man is not impeded, as it is over the forest region which once stretched from the Pacific to the Atlantic across the Eurasian system or by the desert region to the south. At this point, therefore, the hypsometric conditions coöperate with the rainfall produced by the distribution of isobars and other causes to create in this linked region the opportunities, not for extensive and heavy population, but for nests and centers of population. Climate, which is rainfall plus place and temperature, enforces this condition still more clearly. The Mediterranean basin constitutes a distinct climatic region, separated on the one side from the steppe climate of eastern Europe and from the moderate climate, due to warm currents of air, in western Europe. India and the island world to the southeast constitute another climate, not unlike in its uniform conditions to the Mediterranean basin, though wholly unlike in its temperature and precipitation. This has to the north the steppe climate of central Asia and the climate of China, as with that of Europe, modified by air drifts. Between these two regions, as the distribution of climate by Supan shows, the mountain region, extending from the

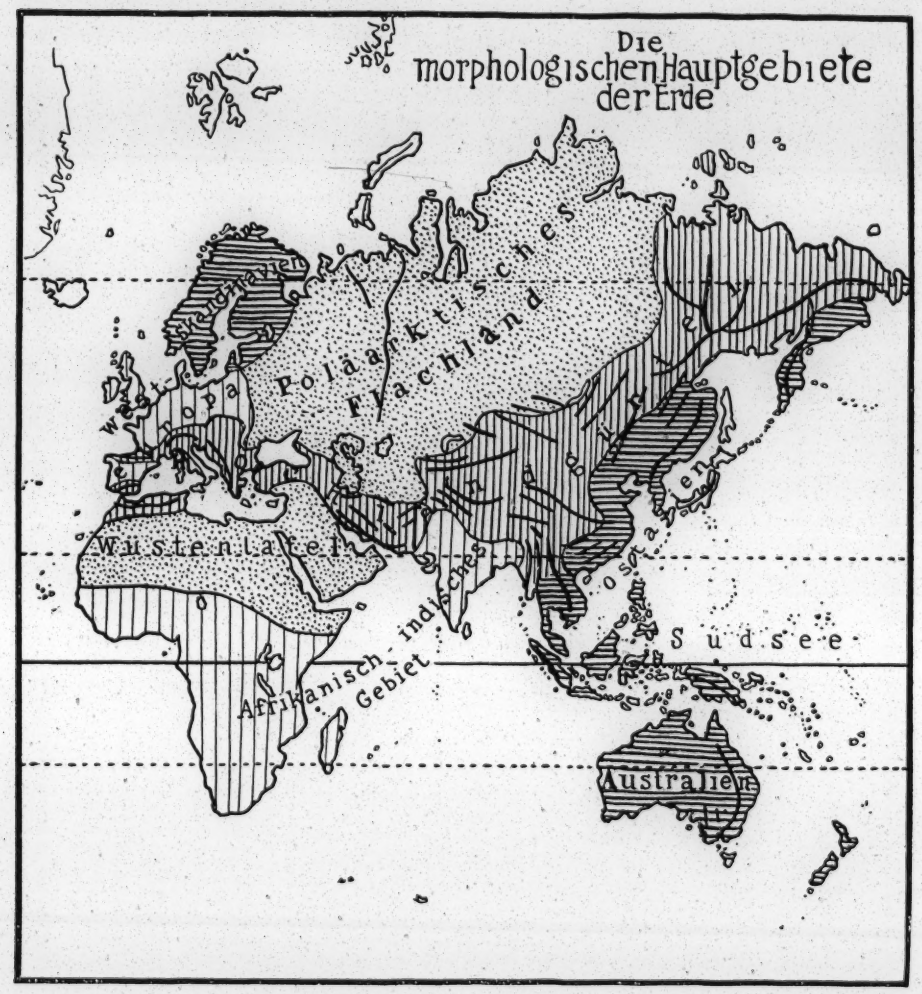


Map Showing Distribution of Rainfall on Earth's Surface

Map Showing Climatic Divisions

1. West Europe
2. East Europe
3. West Siberia
4. East Siberia
5. Kamchatka
6. China and Japan
7. Asiatic Plateau
8. Aral
9. Indus
10. Iranic Plateau
11. Mediterranean
12. Sahara
13. Tropical Africa
14. Kalahari
15. Cape
16. East India
17. Australia
18. South West Australia
19. ———
20. New Zealand
21. Polynesia

valley of the Indus to the coasts of Asia Minor—a region decreasing in elevation as it passes from the mountainous uplift looking down upon the Indus to the plateau of Iranistan, and so on to the broken ranges in which the Tigris and Euphrates have their mountain origin—furnishes continuous climatic conditions. In its culture, the mountainous region has varied yet it has kept somewhat similar culture conditions, while the plain and rivers below, toward the Persian Gulf and the Indian Ocean, have as constantly furnished the development of commerce and cultivation. Considered with reference to climate, therefore, the region which we are considering again appears as a link region, lying between the climatic conditions which exist over the Sahara and Arabia and those which obtain in the Eurasian plains from the Vistula to the Asian uplift. Nor is it without its close connection with the various history that has there appeared that this region has in Asia Minor a climate at so many points closely resembling that of the high interior of Asia, so that from western Asia Minor to the north of eastern Tibet the same Turkish language may



be heard, the same tents seen, and the same tribal customs studied under the scattered and isolated conditions of nomadic life.

FLORA BOUNDING CULTURE REGIONS

The flora of a region, which is a blend of the influences of its physiography, its precipitation, and its climate, makes these relations still more clear. The flora also, since its limits define the bounds of agriculture, constitutes sharper boundaries for varying culture than are furnished by any other physical condition. While the climate and precipitation of the Mediterranean, the north African, and the southwestern Asian region vary, the same flora extends from the western flanks of the valley of the Indus to the Pillars of Hercules. Essentially the same flowering plants flourish from the southern edge of the Pyrenees, Alps, and the Julian chain to the southern edge of the Atlas, and the more favored Saharan oases. Substantially the same genera, with far smaller variations also in species than would be anticipated,

are to be found in the valleys of Morocco and Baluchistan, of Afghanistan and the Iberian peninsula. Over this entire region closely similar deciduous trees and annuals almost as similar flourish. Over them, consequently, the same agriculture is possible. As will be seen, in Supan's distribution of floral kingdoms, this floral region which abuts to the north in Europe on the flora of the great forest, of which so few remnants are left, between the North Sea and the Sea of Okhotsk, which touches on the east upon the flora of inner Asia, and which is flanked to the south by the typical flora of Africa, Madagascar, and India—at so many points furnishing the proof of an earlier connection—constitutes a connecting link in limitations of precipitation, climate, and vegetation which permit substantially similar human culture and ideals to exist over the entire area. Substantially within these limits were felt the influences of the earlier empires from the fourth to the first millennium before Christ. Within them swayed the refluent tides of the successive empires in the first millennium before and the first millennium after Christ, beginning with the Persian expansion and ending with that of Islam. This region, therefore, in which nearly all Eurasian fruits and so large a share of the food plants of civilization were first cultivated, in this respect is again seen to be a connecting link between the rice and wheat civilizations of Asia and the wheat civilizations of Europe.

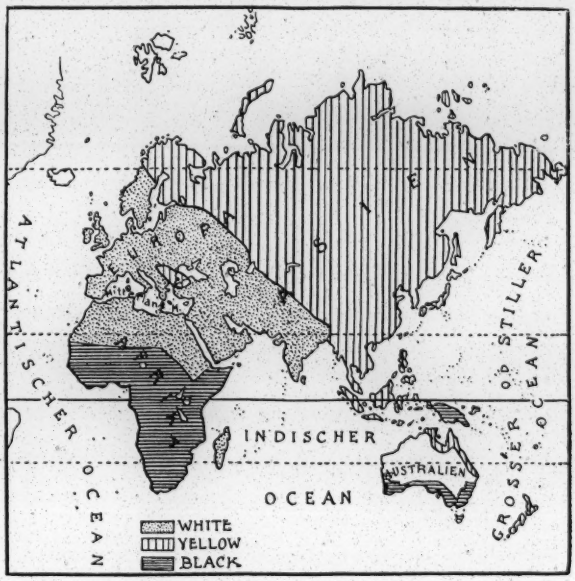
SOUTHWESTERN ASIA AS A DIKE

If we now collate these facts with reference to elevations and return again to the distribution of levels with which we began, it becomes plain that what we are really considering in these varying conditions is the fact that the Great Uplift is really, in the region which we are discussing, a narrow dike of mountains between the comparatively flat lands which extend from Arabia to the Atlantic, which we know as the Saharan region, and the other great flat area which abuts on the northern edge of the inclosed region we have already mentioned, and extends from the western boundary of Russia to eastern Siberia. This strip, which one might almost term, borrowing a physiological analogy, connective tissue between the developed regions in India and China and those of Europe, is in the last analysis a sort of mountain rampart which separates the flat lands of central Asia, with one definite type, from the flat lands of Africa and Arabia, with another type as definite. This rampart is also so situated with reference to atmospheric currents that it carries along the conditions, so far as human life is concerned, which exist along the northern edge of the Mediterranean.

RACIAL DISTRIBUTION

The effect of this upon human life first appears in race. The races of men are in general terms distributed in the eastern hemisphere in three great masses: the yellow race occupies eastern Asia, holding the region which has already been clearly indicated as the flat lands of northern Asia, its central uplift, and its eastern coast; the white race in its various forms extends from India, connected by the tract we are considering with white expansion in Europe, Arabia, and North Africa, and the black race holds two-thirds of the African continent. This general distribution sufficiently indicates the fashion in which southwestern Asia has given the bridge, whatever theory we adopt as to the origin of the Aryan race, either that the race left India and spread over Europe and the Mediterranean basin, or starting in Europe has found its way into India, occupying that peninsula until it reached in Indo-Asia and the inner inclosed basin of the con-

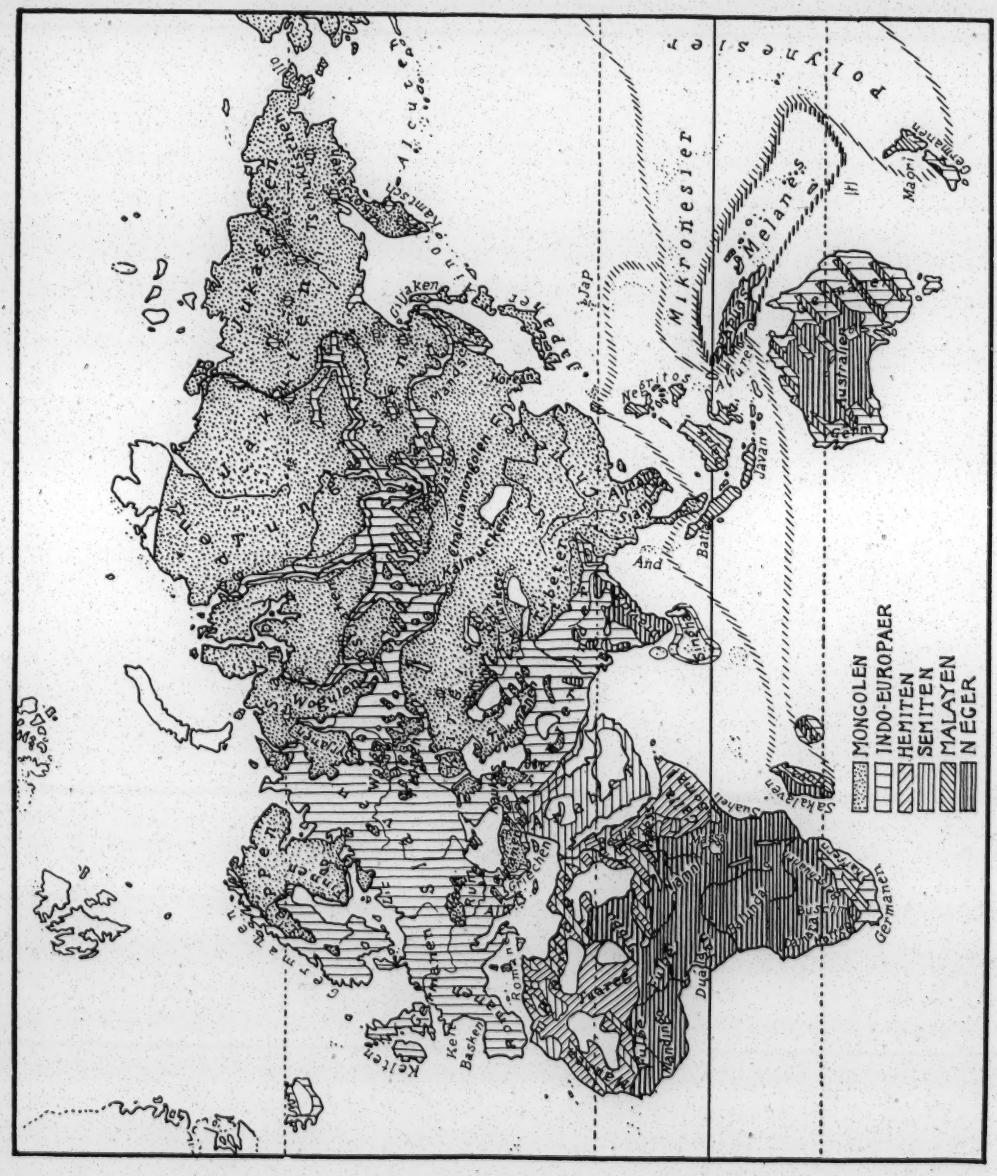
tinent the tenacious boundaries of the yellow race. These have remained substantially unaltered from the earliest gleams of race relations. A similar tenacious boundary exists in the African continent, following closely, though not absolutely, since this itself indicates a physiographic condition, the southern line of the date palm and the northern line of the banana. But when we adopt a closer scrutiny of races, as in the map, page 264, in which the chief effort has been to indicate the interrelation of the races, whose wider arrangement has been already portrayed, we discover that the bridge of which we have spoken constitutes the one region in which there has been a confused admixture of the various types which exist north and south of the Mediterranean and north and south of the Himalayan uplift, north and south, in short, of the great depression which divides Europe from Africa and the great elevation which divides northern from southern Eurasia. On southwestern Asia have flowed from the north the tides of the nomad life in the great plains, which extend without a break from northeastern Siberia to the Caucasus and the Ural. Against it have flowed from the south the Berber and Arab tribes, Hamitic and Semitic, and in some places, as in the inclosed basins of Asia Minor and the basin, once as closed, though now opened, of the Hungarian plains, congeners of the yellow races have forced their way. In a long, detached, straggling line the white races hold a slender pathway from their great mass in Europe to their great mass in India. Each of these divisions guided men by the culture developed in their native region, feeling their way along the parts of that diversified region between the plains about the Sea of Aral and the plains about the Red Sea, together with the Aryan entrance from east or west, to whatever parts of this tract best suit the culture which each has developed in its own home.



The Races of Mankind Before the European Invasion

FAUNAL DIVISIONS

What is true of this linked relation is true also of the fauna. This elevated tract between the plains of Arabia to the south and the plains of Tartary to the north, with its coterminous conditions of rainfall, climate, and flora, carries analogous animal conditions across the Eurasian mass from east to west. The roe deer among the Cervidæ, representing in size, in agility, and in a more graceful outline the gradual change from the bulkier forms of the northern species of the deer to the more slender outlines of the antelope, is found upon the Pacific coast in north China and in another extended habitat over Europe. These



Map Showing the Interrelation of the Races

Adapted from Volkerkarte der Erde, Andree's "Allgemeiner Handatlas"

two faunal regions are joined as to this species by a narrow bridge, where the roe deer is found, across Asia Minor and northern Persia; and where the roe deer runs there has always been the dawn or the full presence of organized law, of stable institutions and statecraft, whose earliest game laws are often devoted to the preservation of this creature of the chase. The pheasant, another genus which connotes distinctly marked limits of rainfall, of climate, and of a certain production of seed and insect, in like manner stretches across this continental mass, in another rude linked shape, two larger masses lying east and west, whose connections extend through the region which we are considering, and whose species enjoy a sufficiently similar environment to render it possible to transplant the Chinese pheasant to the preserves of England. Among the greater carnivora, the dividing line between the tiger and the lion runs across this region. The tiger represents the extreme Asiatic type of the Felidæ; the lion, the extreme African. The one has his most powerful development in Uganda, and the other in India. The lion extends to extreme tropical regions and beyond to the South Temperate Zone, and the tiger to Siberia and the arctic cold of the mountain regions in Manchuria. The two meet and mingle across the valley of the Euphrates and the uplands of Iranistan. Both at the point of juncture are reduced to their lesser sizes and are less dangerous to man than in their centers of largest growth, and, it is possible, of original development; but their common home exists only along the uplands we are considering, though it is difficult to give any reason why the lion should not have spread over Asia or the tiger should not have pushed his way into Arabia and so on into the African jungle. Instead, they meet without penetrating farther, like their predatory human congeners on each side of the same line, the Arabian to the south and the Turk or Tatar to the north. While the line is less clearly drawn, there is reason to believe that the ass and the horse meet in the same region, the ass representing an Arabian or Persian origin and the horse, in all probability, harking back to the Asian plain. There is some reason to think that varieties of camel, Bactrian and Arabian, meet at this point. It is only on the caravan roads of Persia and extreme eastern Turkey that one may from time to time see the single hump, the light coat, the somewhat more nimble form of the Arabian camel, with the ruder outlines, the woolly coat, and the bulkier though similar shape of the Bactrian representative of the species.

(*To be concluded in the August number*)

CHINA: HER HISTORY AND DEVELOPMENT*

By John Barrett, Formerly Minister to Siam

DYNASTY upon dynasty, including the great Sung, from 960 to 1126, followed. In this period were wars of the Chinese against the Khitans and the Kins, until finally the invincible Mongols commenced their conquest, and the way was prepared for those famous men of Chinese history, Genghis and Kublai Khan. No more interesting chapter in the history of any nation can be found than the record of the conquering armies of these Mongolian Alexanders or Cæsars or Napoleons. It is doubtful if any one of these three was a greater man than Genghis or Kublai Khan. Genghis, his son Okkodai, and his grandson Kublai were natural leaders of men and possessed rare military genius. They made invasions and conquests equal in danger and difficulties to that of Hannibal into Italy, Alexander into India, Cæsar into Great Britain, and Napoleon into Egypt or Russia. Marco Polo has sung the praises of Kublai, but the records of China tell likewise of his reign. Genghis and Kublai Khan, with Confucius, Mencius, and Li Hung Chang, are the five great names of Chinese history that come readily to our minds.

The Khitan Tatars, who had harassed the Chinese and were in turn harassed by the Khin Tatars, went down with the Khins before the Mongols under the leadership of Genghis. He extended his empire from the Caspian to the China Sea. His sway embraced forty conquered kingdoms, and he was making war on the Chinese when he died—about nine hundred years ago—and ordered his valiant son Okkodai to continue his labors.

Okkodai was pursuing the invasion of China with slow but sure results, for the Chinese resisted with wonderful bravery, when he died, and was succeeded by the mighty Kublai. He was the real conqueror of China. At Yaishau he fought the greatest battle in the annals of China; 200,000 men were killed, including Ti Ping, the last emperor of the Sung dynasty. It was fortunate for historical record that Marco Polo was in Asia during the reign of Kublai; otherwise the foreign world would never have appreciated the greatness of the man and his kingdom. When he passed away, in 1224, at the ripe age of 83, he was absolute autocrat of the most extensive empire of all time.

THE MONGOL SWAY

Thus in China there sat upon a throne almost in modern days an emperor who practically held all Asia and part of Europe in his grasp. No Roman, no Greek, no ancient or modern European king has ever held such sway; and yet some superficial critics class China as a land of barbarians, without history or civilization which can be compared with that of Europe or America. It is suggestive of later events that his only signal defeat was experienced when he strove to annex Japan. Two great expeditions against the intrepid islanders suffered disaster, and Japan remained independent. Kublai even favored Christianity. He was a good monarch, and ruled his people with kindness, but his successors were not equal to their responsibilities.

Thus again history repeated itself.

* Concluded from the June number.

The Mongol sway degenerated. The famous Ming dynasty was ushered in about the middle of the 14th century, in 1365, and remained in power for two centuries. Romantic as it may seem, the first of the Mings was the son of a poor laborer in the Yangtze Valley, who saw his opportunity, seized it, led the Chinese armies to victory, established his capital at Nankin on the Yangtze, declared himself emperor under the name of Taitsu, and made a successful expedition to Pekin, entering the northern capital unopposed with flying banners. The story of the Mings is one for the greater part of wars with the Tatars, insurrections, expeditions, and disturbances, with now and then a period of quiet and content, when education, art, literature, and agriculture were fostered.

When the assertion is made that the Chinese are not a warlike people, it assuredly is not based on the martial records of the bloody past. It seems that the major portion of Chinese history is like a prize fight, if I may use the homely figure. There is a round of hot, fast blows; then there is a minute of rest and a breathing spell, followed by another period of merciless hammering, until one man succumbs and the other wins. China for nearly fifty centuries has been a ring, and the emperors, dynasties, and different races or tribes have been the fighters for the prizes of dominion and empire.

This incessant warring by Cathay of 75 cycles has in it a suggestion of warning for the rest of the world which must not be despised. Shall we not study the Chinese all the more carefully that the American people may coöperate with rather than antagonize such a powerful and persistent race in Asia? No other people of intense political activity, from the earliest records of man to the present hour of writing, has had such a marvelous history of persistent success over all difficulties. What are America's 400 years since Columbus compared to China's fifty centuries?

As we are now approaching the modern era, I shall bring my hurried view of China's history to an early conclusion. It has been my chief purpose to reach back to that far-distant past of which the world knows too little. What has occurred in later times and in recent days is so well known and so well described in numerous books that I shall not endeavor to even carefully summarize it. We are too apt to look upon China's past as a blank, when in reality it is a well-nigh limitless period of ceaseless activity. China need not be other than proud of it. She has produced warriors, statesmen, philosophers, and poets that equal those of other great peoples. The more she is studied the more profound will be our admiration of her and her people, and the less we will think of her as a weak state, and of her people as dirty, cruel coolies, without credit for the past or hope for the future. China and the Chinese have abundant shortcomings, but none can deny that they have a wonderful history.

THE ACHIEVEMENTS OF THE MANCHUS

The end of the Ming dynasty brings us to the beginning of that of the Manchus, which now controls the throne of China. In 1644, 257 years ago, the present dominant dynasty began its reign. In view of the events of years gone by, it would not be surprising if the time were approaching for a new dynasty that will make China again one of the great powers of the world. Possibly a Wan Wang, a Kublai Khan, or a Taitsu is needed for the successful consummation of a radical movement for progress. May Kwangsu himself prove that he is equal to the opportunity and responsibility.

The achievements of the Manchus have not been limited or small. They

have done their part, and compare favorably with the preceding dynasties. Beginning in response to an invitation of the Chinese to drive out a Tatar usurper, they became in forty years the masters of China, showing surprising power and valor. Among the Manchu heroes was Koshinga, a semi-piratical leader, who expelled the Dutch from Formosa.

In the early days of this dynasty embassies began to arrive from western nations, and the Jesuit missionaries held high places on account of their mathematical and astronomical knowledge. Formosa was conquered and Chinese authority was made paramount in Tibet. Of Kanghi, who reigned for 61 years, or a cycle of Cathay, and made the Manchu sway complete over China, it is written: "The public acts and magnificent exploits of his reign show him wise, courageous, magnanimous, and sagacious. In the smallest affairs he seems to have been truly great."

In later reigns wars were waged against the Burmese and the indomitable Goorkas in Nepaul, who had invaded Tibet. Kien-Lung was another emperor of the Kanghi greatness, and under him relations with the outer world and knowledge of it among the people grew rapidly. Then followed Kia King, and then his famous son Tau Kwang, who was emperor when the first war with England aroused both China and Europe and practically opened the former to the trade of foreign nations. His reign ended with the Taiping rebellion, which swept over such a large portion of China, and was finally concluded through the skillful leadership of the eminent Chinese Gordon, who later was cruelly assassinated at Khartum. Hienfung, of mediocre abilities, succeeded Tau Kwang. Tung Chi, under whom the Taiping rebellion was subdued, followed Tau Kwang. The Mohammedan rebellion was another period of destructive interior wars, and Kwangsu, the present emperor and cousin of Tung Chi, came to the throne.

It has been my privilege to have led rapidly in review Chinese dynasties, emperors, empresses, feudal lords, usurpers, philosophers, historians, travelers, merchants, and diplomatists who have figured in the annals of Chinese history from Fuhhi, 3,000 years before Christ and 5,000 years before the present era, down to the brilliant Tsi An, who controls through Kwangsu the destinies of China at the beginning of the 20th century.

FOREIGN RELATIONS

The foreign relations in the modern sense are chiefly limited to the last fifty years. Interesting events that have a direct bearing on the present have, however, occurred through the past two centuries. Only a few salient points can be here emphasized.

With Manchuria and Russia before our eyes every day in the papers, we note that the first treaty between China and Russia was imposed, as a result of a five-years' war, by the former on the latter, in 1689. By this the whole of the Amur Valley was placed in China's hands. Nearly two centuries later, or in 1858, Count Muravieff secured for Russia the Amur Province, while in 1860 General Ignatieff, taking advantage of the presence of the Anglo-French troops at Pekin, transferred to Russia with a stroke of the pen the entire Manchurian coast line from the mouth of the Amur River to the frontier of Korea. In 1898 Russia, by the Cassini convention, took Port Arthur and Talienwan; and now, in April, 1901, the whole world is asking the significance of her occupation of Manchuria in relation to the integrity of China and the maintenance of the open door.

The French, as early as 1289, when Philip the Fair was king, received dispatches from China, suggesting common

action against the Saracens. In 1688, four centuries later, Louis XIV addressed a letter to Emperor Kanghi, whom he saluted as "Most High, Most Excellent, Most Puissant, and Most Magnanimous, Dearly Beloved Good Friend." In 1844 the first treaty was negotiated. France later engaged in war with China over the acquisition of Tonkin and Cochin-China, and a treaty was signed in 1885 giving France jurisdiction.

Germany's first expedition was in 1861, but her chief connection with China was the occupation of Kiaochau in 1897, which practically gave her control of the rich and resourceful province of Shantung.

English intercourse began with the East India Company in 1615, when it opened agencies at Amoy and in Formosa. For the next two centuries this great company's interests were England's own interests, but her position was that of a suppliant trader. In 1741, and again in 1816, British gunboats at Canton reminded the Chinese that British traders had certain rights that the mother country would protect. The embassies of Lord Macartney in 1792 and of Lord Amherst in 1815 accomplished but little.

Relations grew more and more strained after Lord Napier and Sir J. F. Davis had endeavored by authority of Parliament to establish new and better conditions. Open hostilities began in 1839. In 1841 the Island of Hongkong, now the most important port on the eastern Asiatic coast, was seized by Great Britain. This struggle was the celebrated "Opium War," which really opened China to the foreign world, and for which Britain has too often been unjustly criticised. Though it is called the Opium War, opium trading was only an incident in the list of causes. The war was waged, in fact, to stop an endless array of grievances that had accumulated during two centuries. The best result was the opening as "treaty ports" to the commerce of foreign nations Canton, Amoy, Fuchau, Ningpo, and Shanghai.

In 1856 England was again engaged in a brief Chinese war, and trouble continued until the Convention of Pekin was signed, in 1860. Other treaties, the occupation of Wei-hai-wei, Kowloon, and kindred negotiations I pass over, though important. In considering Great Britain's relations to China in the past and at present, it should be borne in mind that no other country had or has so much at stake in commerce and politics. For that reason we commend her energy in the former days and wonder at her inactivity in the last years and months.

AMERICA AND CHINA

America's relations with China have always been to her credit. Whether we consider the pioneer methods of our merchants and missionaries of a century ago or the work of our diplomatists and generals today, our Government has little or nothing of which to be ashamed and much of which to be justly proud.

The records of relations begin with the report of Major Shaw, the clever supercargo of the ship *Empress of China*, which, loaded with ginseng, sailed from New York Harbor for Canton on Washington's birthday, 1784, and returned on May 11, 1785, with a cargo of tea. The Secretary of State was then John Jay, who, like his successor, John Hay, was an honored advocate of the legitimate development of American interests. Major Shaw reported to him, and he submitted the report to Congress, which immediately resolved "That Congress feels a peculiar satisfaction in the successful issue of this first effort of the citizens of America to establish a direct trade with China, which does so much honor to its undertakers and conductors."

In the year 1832–'33 there were sixty American ships at Canton, and our trade was even then valued at nearly $17,000,000 per annum. The first American missionary was Robert Morrison, a man of great learning and ability, who arrived in China in 1807.

America commenced direct diplomatic negotiations with China in 1844, when Caleb Cushing signed the treaty of Wanghia. Since then there have been only the slightest breaks in the *entente cordiale* between China and the United States. New treaties have been drawn up when necessary, and American trade has grown more rapidly than that of any other foreign nation engaged in the competition for the control and profits of Asiatic markets.

Our commercial opportunity in China, which is a favorite theme of mine for discussion prompted by many years of official and private study and residence in Asia, is the greatest in potentialities of any beyond our shores. Today our trade exchange with China, including Hongkong, is valued at $45,000,000 per annum, and yet it is in the infancy of its development. Making conservative estimate on the basis that the "open door" is preserved in China, that the interior of the Empire is made accessible by railways, and that the government becomes progressive, there is no valid reason why our commerce with Cathay in 1925 should not have grown tenfold and be valued at $450,000,000.

These possibilities remind us of the supreme necessity of the protection of our treaty rights throughout all China, from Manchuria to Kwangtung. It is gratifying that President McKinley and Secretary Hay are shaping our policy at Pekin with reference to the importance of our interests, present and future. We want and will take no territory, no ports, but we contend for the unhampered privilege of trading everywhere in China on the same basis and with the same privileges, without discrimination, as any and all foreign nations.

After the maintenance of the "open door," the chief object of American effort in the matter of commerce would seem to be the abolition of the so-called Lekin or interior taxes on foreign goods when they have left the treaty ports for their destination. It is no exaggeration to predict that the foreign trade with China would double in five years if the duty paid at the custom-house was the only burden on foreign imports. The chief object in the new commercial treaties which will be negotiated at the conclusion of the present difficulties will be the protection of foreign imports from Lekin, barrier, and destination taxes, or "squeezes."

AMERICAN INTERESTS IN MANCHURIA

The future of Manchuria directly concerns the United States. In one way we have more at stake than any other nation. More American products are sold there than in any other portion of China. American imports to Manchuria exceed those of any other nation. The outlook in ordinary conditions for the increase of American trade in Manchuria is better than elsewhere in Asia, and hence the situation appeals to American export interests, especially to the cotton industries of the Southern States.

I am making no comment on the diplomatic issue at stake, nor on the policy of Russia, but I am telling the simple truth about Manchuria's importance. Having crossed it from Niuchwang to Vladivostok by way of Kirin and Mukden, I can say that it is prospectively one of the best sections of China, capable of supporting a large population and providing an extended market. When I first visited Niuchwang, some eight years ago, American imports were barely worth 15 per cent of the total; when I went there last, in 1898, they were 50 per cent of the total and were still growing. It is the Manchurian demand, for instance, that has caused the wonderful increase to $10,000,000 in the value of

our manufactured cotton goods sold in China. The demand for flour, oil, manufactured iron and steel bids fair to increase in like proportion if the door of trade is not closed against us.

If, now, I should summarize public opinion in regard to China and our policy, as it has been my privilege to test it in addressing commercial and missionary organizations in all parts of the United States from San Francisco to New York and Chicago to New Orleans, I should state, first, that public sentiment, regardless of party, is undoubtedly heartily in sympathy with our Government's policy, and, second, that if this opinion were crystallized into specific expectations it would name the following provisions:

1. Every legitimate effort should be made to preserve the integrity of the Chinese Empire and the freedom of trade throughout its extent as originally outlined in the old treaties, while needed reforms in administration of government and foreign intercourse are duly advocated and pressed.

2. Indemnities should not be demanded by government, missionaries, or merchants except within the lowest reasonable limits, and the entire question of indemnities and kindred issues should be referred to an International Tribunal of Arbitration as provided by the Hague Peace Treaty.

3. New treaties of commerce and amity should be negotiated as soon as is practicable by the ministers at Pekin which will give every nation equal rights of trade throughout all China, provide for the abolition of the Lekin and other offensive taxes, and insure the "open door" for commerce and Christianity alike.

4. Charity and not revenge, with punishment only for those responsibly guilty and within the Chinese Government's power to punish, should characterize the demands of merchants and missionaries, as well as of our Government, for in that way we will eventually win the lasting gratitude and favor of China's government and people, strengthen our own position, and develop the best guarantees within and without China for an "open door" for both God and Mammon.

Finally, we note that a study of Chinese history and character enables us to understand better the mighty influences now at work in China. It forces us to draw certain remarkable conclusions that throw light upon the present crisis at Pekin, but which are not generally remembered in popular discussion of the problem before us.

CONCLUSION

There is danger of misunderstanding and underrating the people and the possibilities of China in war and in peace, because the wonderful past of the empire is not commonly known.

First. It may seem surprising, but it is a truthful statement in the light of history, that the Chinese, if necessary, are a warlike people. They are born warriors. They inherit a capacity and tendency to fight from a longer line of fighting ancestors than is the heritage of any or all of the Powers now arrayed against them at Pekin. The soldier may be unpopular in the social and political life of the empire from the teachings of the classics, but the salient fact remains that wars and soldiers have engaged the attention of the empire and people more than peace and scholars during her fifty centuries of sway. The lack of an organized army is a mere passing incident of the times.

Second. The recent Boxer uprising and seizure of the legations, while they rightly appear in the judgment of the hour to be fraught with great possible results both to China and the foreign world, are secondary events when compared to scores of uprisings and difficulties in China's seventy cycles and

twenty-five dynasties. The massacres, men engaged and killed, area of disturbance, and vexations of settlement and indemnity are, after all, limited when we balance against them the events of centuries that are gone.

Third. The end of China is not yet. If she is divided, it will in history be only a temporary division, but one suggestive of revenge and consequent danger to the white and Christian races.

If she is not divided, a new and grander period of progress and civilization will surely follow the troubles and haze of the past sixty years, just as has been the almost invariable experience of the great past. Men and means will be forthcoming to build up this newer China. Whether this era is inspired from within or without, whether it comes with a new dynasty, a new emperor, or with the present emperor supported by foreign hands, the world will yet see greater things in China than it has ever viewed in America or Europe. As China's 400,000,000 people must by law of nature increase to countless more millions, and as her 4,000,000 square miles, with their vast unsurpassed resources, must inevitably respond to material development, so her 4,000 years of history as a nation and people, with their rich experience, their reserve energy, their conservatism, their recuperative capacity, their homogeneity, teach us to believe that China will survive successfully the present crisis.

Is not, therefore, the policy of our Government—that of mingled firmness and charity—a wise one?

If we protect our treaty rights, demand just punishment without revenge, respect China's inalienable prerogatives, and show dignified generosity in the evolution of the new status, we shall have China's 400,000,000 people as our lasting friends rather than our everlasting enemies.

THE INDIAN VILLAGE OF BAUM

THERE is an exhibit in the Ethnology Building at the Pan-American Exposition in Buffalo that will be of special interest to archæologists, as it represents a discovery so recent that no previous exposition has had the opportunity of exhibiting it to the world. It is the remains of the Indian village of Baum.

Prof. William C. Mills, of Columbus, Ohio, curator of the Ohio Archæological and Historical Society, who was instrumental in the finding of Baum, came to Buffalo to install this exhibit. Most of it is placed in glass cases, but the central feature is a little graveyard on the floor-space directly under the great dome. It is bounded by an iron railing, within which black loamy soil has been neatly packed as a bed for the prehistoric skeletons it has been Professor Mills' ghoulish task to arrange. Bone by bone he unpacked them and fitted them together into the ghastly semblance of men, women, and little children. There they lie in the same relative positions in which they were found in buried Baum.

So new and yet so old is Baum that only a few of the best informed even know its name. It was discovered last year, in Ross County, Ohio, and was named for the man who owned the property. Archæologists in the Indian field consider it one of the greatest finds of the century. The village encircled one of those great mounds that have so long been the wonder and curiosity of latter-day races. Mound and village have thus helped to interpret each other. Wise

men have read strange stories in the bones and stones they found there, and both are laid out now, like an open book, in the Ethnology Building for the public to peruse.

On the ground above the village trees were growing that had sprouted not less than eight hundred years ago. The people whose tools and toys we contemplate today had rotted in their graves four hundred years before Columbus saw America. If they were there when the Norsemen visited Vineland the Good, neither people learned of the other. There is absolutely no suggestion in any of their relics that they had ever had the remotest contact with a European race. They were a primitive, aboriginal people, that returned to the soil as mysteriously as they sprang from it.

The implements they fashioned out of the rude materials about them show that they had reached a high degree of civilization for a prehistoric people. It is marvelous to see to what uses they put the bones of animals. From the bones of deer, bear, coon, and wild turkey they fashioned needles, awls, fish-hooks, and arrow-points. Not only are there plenty of fish-hooks made from bone, but there are pieces of bone to show the various stages of manufacture.

What a patient creature was the primitive man! How pathetic are the traces of his first early struggles to create! There are the pieces of bone which he had slowly hollowed and polished and cut to make a hook. There, too, are his failures, the hooks that he broke before he had done, the eloquent tokens of bootless pains.

Side by side with bone arrow-points are those of flint. Probably each weapon had its advocates. Flint knives, flint drills, tell of rude skill definitely directed. A stone awl-sharpener bespeaks the careful workman.

In the collection is a small carved stone. The characters on it are quite plain to all, rude as they are, but the interpretation is not clear. Wigwams are indicated by a few artistic strokes of the knife. Nearby are a turtle and a fox, and above is a watchful eye looking down on all. What is the story the Indian artist tried to tell?

Some pieces of pottery were found that make one think of the modern Mexican's handiwork. The bowls are rudely wrought, but a stone slab, with a stone roller, is almost the exact counterpart of the Mexican metate. Like the Mexican woman of today, the squaw of old knelt patiently, hour after hour, grinding corn on the metate for the simple maize cakes that were the staff of life. Corn of the eight-rowed and ten-rowed variety was found in the buried village; also beans, wild grapes, papaw seed, walnuts, hickory, wild plum, chestnuts, and hazel nuts.

Turtle shells, used for drinking cups, and stone pipes of really dainty cut are among the recovered treasures. Discoidal stones with holes in them suggest games of chance, such as all early people delighted in.

Many of these articles are found in ash-pits or refuse heaps that had been sunk about the village to keep it in tidy condition. Others were found in the graves. Ornaments, in the shape of bone or bead necklaces, were discovered with the skeletons of children in particular. The teeth of the elk, cut and perforated, are plentiful in some graves.

It is strange that nowhere does one find human bones used for utilitarian purposes. There are awls made from the tibia-tarsus of the wild turkey, from the shoulder blades and from the ulna of deer and elk, but nothing from the human scapula or femur. One of the most interesting collections is that of scrapers, used to remove the hair from the hides of animals, to dress them for raiment. They are made from the metacarpal bones of the deer and elk, and great quantities of them were found.

Among the heaps of bones were many

that had a strangely familiar look to Professor Mills. They carried him back to his boyhood days and reminded him of the bones his pet dog used to gnaw. So he began to look for the dog, and he found him, the early Indian canine, with a skull like a modern bull terrier's. He, too, has gone to the happy hunting grounds of his father.

The Historical Society, of which Professor Mills is curator, is interested in preserving archæological and historical relics to posterity. The famous Fort Ancient, in Warren County, has been set aside by the society's endeavors in a park of 300 acres for public edification. The great Serpent Mound, in Adams County, has been similarly emparked. It is an embankment 1,300 feet long and three feet high, which is an eloquent monument to human endeavor, and as such should be preserved.

H. C. BROWN.

THE GEOGRAPHY OF ABYSSINIA*

THE geography of Abyssinia is now fairly well known as far as the rivers and boundaries are concerned, but there is a great deal to be learned regarding the Danakil country on the east and the country to the south and southwest. The best maps of the country are those made by the Italians, but they are rather bewildering by the number of names they contain of unimportant little places consisting, perhaps, of three or four houses. Unless a map is made on a very large scale, say two inches to a mile, it is impossible to put in all the villages and local names for the small streams, etc. Many of the mountains are differently called by the inhabitants of the various slopes, and therefore names are not always to be relied on. If the local market towns are marked and those villages that possess a church, travelers will have no difficulty in finding their way about the country, and supplies can generally be purchased on market days to enable them to proceed from one market town to another.

The Italian colony of Erithrea, which bounds Abyssinia on the north, is well surveyed, the heights of mountains, government stations, and plateaus have all been determined, and statistics of rainfall and temperature are kept and published. Abyssinia is not at all a difficult country to travel in on account of the very conspicuous landmarks and the enormous extent of the landscape that is visible from the various high mountains. The atmosphere in the highlands is wonderfully clear, and enormous distances can be seen. From Halai, in the north, the Semien Mountains are visible on a clear day. Above Wandach the Semien can also be seen, and from Wandach the mountains to the north of Ifat, and from there the mountains round Cunni, in the Harar province, are visible, and it might be possible, perhaps, to heliograph from one point to the other. Part of Halai range is also visible from Massowah on a clear day.

The climate in the highlands of Abyssinia is superb, and it is only in the valleys that it is unhealthy and that malarial fever is to be caught. There is a great discussion going on at present about the mosquito, and it seems curious to me, who have lived in so many unhealthy parts of the East, that the at-

* From *Modern Abyssinia*, by Augustus B. Wilde. Pp. 506, with map and index. London: Methuen & Co., 1901.

tention of doctors has not been drawn to this insect before. I have invariably found that where there is stagnant water contaminated by drainage and decomposing vegetable or animal matter the sting of the mosquito that breeds in this water is very venomous and causes feverish symptoms. This fact is so well known to the Abyssinians that they never build their houses in the valleys where mosquitoes abound, but always place their dwellings on the summits of the nearest hills. When they work in the cultivated parts of these valleys they always surround their fields with very strong hedges, so that they need not remain at night to watch their crops, and even in the harvest time, at the dryest season of the year, they do not leave their houses in the morning until the mists in the valley clear away, and they always return to them before sunset, when the mosquito commences to come out.

Very little fever was known at Suakin before the Egyptian steamers commenced running there frequently ; there were no mosquitoes in the place, and curtains to the beds were never used, although on the other side of the Red Sea, at Jeddah, sleep was impossible without them, and Jeddah is known also as a very feverish place. The mosquito was, there can be no doubt, imported from Suez in the fresh water brought thence in the water tanks of the Egyptian steamers for the use of the Egyptian officials. Now at Suakin the mosquito is quite common in the town, and so is fever, while outside the town fever and the insect are unknown.

By looking at the map of Abyssinia one will find the belts of tropical valley to be very few, and greater altitude in the center, along part of the Tacazze and Blue Nile Rivers, with a few of their tributaries. Sheltered and confined valleys in all parts of Abyssinia are, however, not nearly so healthy as the opener ones of greater altitude. A traveler need never spend more than a night or two in unhealthy parts. It is, however, different with the sportsman ; to enjoy the best of sport he must follow the game that inhabits the damp jungle, and during the rainy season he is lucky to escape a bout of fever.

With regard to the botany of Abyssinia, the greater part of the country has been thoroughly worked out, especially by the late Professor Schimper ; his son, who traveled with me a good deal in the country, informs me, however, that his father did hardly any work in the eastern half of the country, and then only in the dry season ; so there is still a great deal to be learned about the plants that are to be found in this part during the wet season and immediately after it. Geographical details of Abyssinia, such as the amount of rainfall over a series of years at different stations, are sadly wanted. The Italians can supply details of the north in the Hamasen, but there can be no doubt that central and southwestern Abyssinia have a much greater rainfall than the northern part of the country, and the extremes of temperature are also greater in these parts.

There is very little known about the geology of the country, and as it has been so broken up and shows such grand disturbances, its formation should be very varied and should contain many surprises, and minerals should no doubt be plentiful in some parts. Gold has been found in many places since the earliest times, but the centuries of anarchy and confusion which the country has undergone has prevented any thorough examination of the different districts in modern times, and from the time of the Axumite dynasty till 1895 Abyssinia never had a coinage of her own, so that there was no necessity to seek for the more precious metals.

Coal has been reported in several places, but I have seen nothing but black shale. I cannot say whether it exists in the west of the country round

Lake Tsana, as reported, as my journeys have always been in the eastern half of Abyssinia, and I am certain that no outcrop exists in this part, unless on the slopes toward the Danakil country, which I think highly improbable, owing to the volcanic formation.

There is here a large and very interesting field for scientific research, and many years must lapse before Abyssinia is thoroughly known; it is not likely, however, that it will be opened up while the power is all in the hands of one person. Italy will no doubt take her share in the development that is bound to come sooner or later, and her territories will be explored long before the rest of the country. Unforeseen circumstances may arise which will allow an opening up of Abyssinia more speedily than the present prognosticates, but I hardly think that they are likely unless some radical change takes place within the next few years; in the meantime, however, the artist, archæologist, botanist, and others can do good work in learning more about the country and bringing its details before the public. From the lower classes they will receive a hearty welcome, as from a great many of the well-to-do people who wish to see their country opened up and an end put to the constant disputes that arise among the upper classes.

OIL FIELDS OF TEXAS AND CALIFORNIA

DR. DAVID T. DAY, chief of the Division of Mineral Resources of the United States Geological Survey, contributes to the *Review of Reviews* for June an authoritative and interesting statement regarding the recent discovery of oil in the great States of Texas and California. The following paragraphs are taken from his article:

For some reason (for which a common cause would be difficult to find), the last year has been marked by petroleum crazes, unusually serious and in widely separated areas. Only a year ago the attention of those interested in extending our crude-petroleum resources was centered on the new fields in Roumania, which are destined to yield large supplies of oil. But even before this the development of West Virginia had been actually adding to our supplies far more oil and promises of more than Roumania or the more sensational developments abroad or at home. Then came the excitements of the Indian Territory. The importance of California's oil fields in Ventura County, in Los Angeles, and in Santa Barbara, was increased tenfold by the discoveries in Kern County. Then all oildom went crazed again by the discovery of a great field in the region of Beaumont, Texas. One might condense the sensational reports of all these new oil fields by imagining that a tidal subterranean wave of oil had moved up toward the surface of the earth and found vent, first in California, then in Wyoming, and finally in Texas!

The California discovery is likely, of all those which have been mentioned, to be of greatest value; not for quantity of oil, but for the development of the country. California has been poorly supplied with fuel in comparison with Pennsylvania or Ohio or any of the States where cheap coal has developed enormous industrial enterprises. California cannot continue as a great commonwealth, past the agricultural or even more temporary treasure-mining stage, without a great supply of fuel. It is at least partially afforded by the Bakers-

field oil, and it will be the work of the United States Geological Survey this year to so correlate the various oil-bearing strata on the Pacific Slope as to make further discoveries probable.

Traces of oil have been found in California from Mendocino County on the coast (and extending inland a few miles) southward nearly to the southern extremity of the State. Usually the finds have been merely of traces, not even sufficient to cause an excitement; but in the southern part of the State the deposits of thick oils in Ventura County prove sufficient to furnish valuable amounts of fuel. In the city of Los Angeles and at Anaheim the discoveries were sufficient to arouse the usual wild excitement. The feature of this Los Angeles excitement was the finding of many wells, most of them productive only to a moderate extent, the aggregate unimportant for the general supply.

A remarkable feature of the oil industry in California has been the discovery that off the coast of Santa Barbara oil could be obtained by drilling under the Pacific Ocean, near the beach, and this added considerably to the supply of oil, all of it peculiar in being thick, containing as a characteristic a considerable quantity of asphaltum and not yielding paraffine wax by the ordinary processes of refining. It has been possible by refining to obtain kerosene from this ordinary California oil, but not economically.

Within the last two years a marked change has taken place in the economic phase by the discovery, first at Coalinga, in Fresno County, of lighter oil, much more promising to the refiner, and this was followed by similar discoveries, but on a larger scale, in the neighborhood of Bakersfield, in Kern County. The result of these discoveries is well indicated by the fact that there are now over 1,100 oil locations in the State of California, of which 600 are near Bakersfield. The excitement has been sufficient to make oil prospecting more popular than gold prospecting, which has continued in California without cessation since 1849. The oil from these newly discovered fields in Fresno and Kern counties will undoubtedly admit of refining for the production of illuminants, but the great value such finds in California will be in providing a large supply of power-producing fuel. Further, it must be remembered that the great progress in hydraulic engineering in California will not only supplement this oil fuel by extremely progressive use of water-power, but the same means by which water-power has been carried long distances at phenomenally low cost will be applied to developing our pipeline systems beyond their present efficiency in the East.

Had it not been for the unfavorable experience in refining the California oils, with their great percentage of asphaltum, the discovery of oils somewhat similar in Texas would have been more auspicious. Nevertheless, this Texas discovery, with which every one is more or less familiar, is certain to exert as powerful an influence on the petroleum industry in general as the California oils will have upon the local industrial conditions of a State. The accidental discovery of moderate supplies of petroleum at Corsicana, Texas, a few years ago was sufficient to attract the attention of oil men to that State and to have near at hand experienced men and apparatus for well drilling when the final discovery of Captain Lucas, near Beaumont, announced a really great oil field. The details of this discovery are interesting. To Capt. Anthony F. Lucas is due the fact that this discovery was made last year, and not many years later, as would have been consistent with normal development. Captain Lucas visited the writer in Washington, and asked his aid in interesting the oil fraternity to help him in drilling a well at

Beaumont, Texas, where he felt sure that a profitable field would be developed. The reports of the United States Geological Survey indicated at that time the probability of finding oil in this vicinity, because of the external oil indications which had long been observed there; but it was not the province of the Survey to promote any individual locality; therefore Captain Lucas sought further, and without much success.

While the Texas oil-fever is still at its speculative height, the same excitement has broken out in a new spot—western Wyoming—on the Oregon Short Line Railroad. The construction work of the railroad company developed a flowing well which, when allowance is made for the enormous exaggeration which inevitably follows in this industry, yields perhaps five barrels per day. The result has been the incorporation of many companies to take up tracts of heretofore very low-priced land. The lack of confidence of the present speculators is well shown by their inactivity as to actual drilling. Nevertheless, we can recognize that geological conditions are favorable for a considerable supply of petroleum in this neighborhood of the ordinary easily refined quality—a fact which is only of considerable interest to the public it the developments cause the typical sensation-producing "gushers," in which case the excitement will be of value by peopling a region which would otherwise remain undeveloped for many years. We already know of good oil fields in the neighborhood of Casper, Wyoming, and in many other portions of the State, but they have lacked sensationalism and have been subject to conservative development by careful men.

THE SERI INDIANS

SEVERAL years since Prof. W J McGee and Mr. Willard D. Johnson passed several months in the land of the Seri, studying the country and the customs of these little-known people.

A brief summary by Mr. McGee of the work then done appeared later in this Magazine (volume vii, No. 4). The Bureau of American Ethnology has recently published in a handsome volume the official report of Professor McGee, from which the following extracts are made:

The most noticeable social fact revealed about the Seri rancherias is the prominence of the females, especially the elderwomen, in the management of everyday affairs. The matrons erect the jacales without help from men or boys; they carry the meager belongings of the family and dispose them about the habitation in conformity with general custom and immediate convenience, and after the household is prepared the men approach and range themselves about, apparently in a definite order, the matron's eldest brother coming first, the younger brothers next, and finally the husband, who squats in or outside of the open end of the bower. According to Mashém's iterated explanations, which were corroborated by several elderwomen (notably the clan-mother known to the Mexicans as Juana Maria) and verified by observation of the family movements, the house and its contents belong exclusively to the matron, though her brothers are entitled to places within it whenever they wish; while the husband has neither title nor fixed place, "because he belongs to another house"—though, as a matter of fact, he is frequently at or in the hut

of his spouse, where he normally occupies the outermost place in the group and acts as a sort of outer guard or sentinel. Conformably to their proprietary position, the matrons have chief, if not sole, voice in extending and removing the rancheria; and such questions as that of the placement of a new jacal are discussed animatedly among them and are finally decided by the dictum of the eldest in the group. The importance of the function thus exercised by the women has long been noted at Costa Rica and other points on the Seri frontier, for the rancherias are located and the initial jacal is erected commonly by a solitary matron, sometimes by two or three aged dames; around this nucleus other matrons and their children gather in the course of a day or two; while it is usually three or four days, and sometimes a week, before the brothers and husbands skulk singly or in small bands into the new rancheria.

MARRIAGE

The most striking and significant social facts discovered among the Seri relate to marriage customs.

As noted repeatedly elsewhere, the tribal population is preponderantly feminine, so that polygyny naturally prevails; the number of wives reaches three or possibly four, averaging about two, though the younger warriors commonly have but one, and there are always a number of spouseless (widowed) dames, but no single men of marriageable age. So far as could be ascertained, no special formalities attend the taking of supernumerary wives, who are usually widowed sisters of the first spouse. It seems to be practically a family affair, governed by considerations of convenience rather than established regulations—an irregularity combining with other facts to suggest that polygyny is incidental, and perhaps of comparatively recent origin.

The primary mating of the Seri is attended by observances so elaborate as to show that marriage is one of the profoundest sacraments of the tribe, penetrating the innermost recesses of tribal thought, and interwoven with the essential fibers of tribal existence. Few, if any, other peoples devote such anxious care to their mating as do the Seri,* and among no other known tribe or folk is the moral aspect of conjugal union so rigorously guarded by collective action and individual devotion.

The initial movement toward formal marriage seems to be somewhat indefinite (or perhaps, rather, spontaneous). According to Mashém, it may be made either by the prospective groom or by his father, though not directly by the maiden or her kinswomen. In any event the prerequisites for the union are provisionally determined in the suitor's family. These relate to the suitability of age, the propriety of the clan relation, etc., for no stripling may seriously contemplate matrimony until he has entered manhood (apparently corresponding with the warrior class), nor can he mate in his own totem, though all other clans of the tribe are apparently open to him, while the maiden must have passed (apparently by a considerable time) her puberty feast. In any event, too, the proposal is formally conveyed by the elderwoman of the suitor's family to the maiden's clanmother, when it is duly pondered, first by this dame and her daughter matrons, and later (if the proposal is entertained) it is deliberated and discussed at length by the matrons of the two clans involved, who commonly hold repeated councils for the purpose. At an undetermined stage and to an undetermined degree the maiden herself is consulted; certainly she holds the power of veto, ostensible if not actual. Pend-

* Perhaps the closest parallel in this respect is that found in the elaborate marriage regulations prevailing among the Australian aborigines, as described by Spencer and Gillen, Walter E. Roth, and other modern observers.

ing the deliberations the maiden receives special consideration and enjoys various dignities. If circumstances favor, her kinswomen erect a jacal for her, and even if circumstances are adverse, she is outfitted with a pelican robe of six or eight pelts and other matronly requisites.

When all parties concerned are eventually satisfied a probationary marriage is arranged, and the groom leaves his clan and attaches himself to that of the bride. Two essential conditions—one of material character and the other moral—are involved in this probationary union. In the first place, the groom must become the provider for and the protector of the entire family of the bride, including the dependent children and such cripples and invalids as may be tolerated by the tribe—*i. e.*, he must display and exercise skill in turtle-fishing, strength in the chase, subtlety in warfare, and all other physical qualities of competent manhood. This relation, with the attendant obligations, holds for a year—*i. e.*, a round of the seasons. During the same period the groom shares the jacal and sleeping robe provided for the prospective matron by her kinswomen, not as privileged spouse, but merely as a protecting companion; and throughout this probationary term he is compelled to maintain continence—*i. e.*, he must display the most indubitable proofs of moral force.

During this period the always dignified position occupied by the daughter of the family culminates. She is the observed of all observers, the subject of gossip among matrons and warriors alike, the recipient of frequent tokens from designing sisters with an eye to shares of her spouse's spoils, and the receiver of material supplies measuring the competence of the would-be husband. Through his energy she is enabled to dispense largess with lavish hand, and thus to dignify her clan and honor her spouse in the most effective way known to primitive life, and at the same time she enjoys the immeasurable moral stimulus of realizing that she is the arbiter of the fate of a man who becomes warrior or outcast at her bidding, and through him of the future of two clans—*i. e.*, she is raised to a responsibility in both personal and tribal affairs which, albeit temporary, is hardly lower than that of the warrior chief. In tribal theory the moral test measures the character of the man; in very fact, it at the same time both measures and makes the character of the woman. Among other privileges bestowed on the bride during the probationary period are those of receiving the most intimate attentions from the clanfellows of the groom; and these are noteworthy as suggestions of a vestigial polyandry or adelphogamy. At the close of the year the probation ends in a feast provided by the probationer, who thereupon enters the bride's jacal as a perpetual guest of unlimited personal privileges (subject to tribal custom), while the bride passes from a half-wanton heyday into the duller routine of matronly existence.

The Whaling Steamer Eric leaves Sydney, Nova Scotia, the latter part of July, to carry supplies and letters to Peary. Mr. H. L. Bridgman, Secretary of the Peary Arctic Club, will probably accompany the relief party.

The Baldwin-Ziegler North Polar Expedition is on the way to the Arctic regions. Mr. Baldwin, before leaving, declined to outline his plans beyond stating that Franz Josef Land would be the base of the Arctic campaign.

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